

AMENDMENTS TO THE DRAWINGS

Please replace current drawing sheet 5 of 5, containing Figure 13, with the attached Replacement Sheet. Figure 13 is currently amended to replace reference character 4 with reference character 3, as is consistent with the Specification, as originally filed.

Attachment: Replacement Sheet

REMARKS

I. INTRODUCTION:

The Applicant thanks the Examiner for the withdrawal of the previously issued restriction requirement and for the careful consideration of this application. Claims 1, 2, 4-7 and 9 are currently amended, solely to expedite prosecution. Claims 1, 2, 4-7 and 9 are currently pending. In view of the foregoing amendments and the following remarks, the Applicant respectfully requests that the Examiner reconsider all outstanding rejections and that they be withdrawn.

II. APPLICANT'S AMENDMENTS TO THE SPECIFICATION:

The Applicant has made the following amendments to the Specification, solely to expedite prosecution:

(1) Page 1, lines 27-29 of the Specification, as originally filed, is currently amended to remove the following: "The present invention provides method and apparatus as defined in independent claims 1, 2 and 4. Preferred features of the invention are set out in the dependent claims." This is consistent with U.S. best practice.

(2) Page 3, lines 10-17 of the Specification, as originally filed, is currently amended to remove reference character 5, which is not shown in the drawing figures.

(3) Page 3, lines 22-31 of the Specification, as originally filed, is currently amended to replace reference character 4 with reference character 3 to properly denote the "tabs holding the element in the array."

III. APPLICANT'S AMENDMENT TO THE DRAWINGS:

In the Replacement Sheet, Figure 13 is currently amended to replace reference character 4 with reference character 3, as is consistent with the Specification, as originally filed. This amendment is made solely to expedite prosecution.

IV. CLAIM REJECTIONS UNDER 35 U.S.C. §112, SECOND PARAGRAPH:

On page 2, claims 1, 2, 4-7 and 9 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

(1) Claims 1 and 2 are rejected for the lack of antecedent basis for the limitation of “the tab” and “or tabs” (plural). Claim 1 is currently amended to recite: “selectively removing or breaking the at least one support tab supporting one of the discrete elements, wherein the at least one support tab is removed or broken by passing a current therethrough.” Claim 2 is similarly amended to recite: “selectively removing or breaking the at least one support tab supporting one of the Gunn diodes, wherein the at least one support tab is removed or broken by passing a current therethrough.” In view the foregoing amendments, the Applicant respectfully requests reconsideration and withdrawal of the present rejection.

(2) Claim 4 is rejected for lack of clarity as to whether “including means to break the connection or connections by passing a current therethrough” is a means plus function limitation that invokes 35 U.S.C. §112, sixth paragraph. Claim 4 is currently amended to recite “a first portion to break

through an electrically conductive connection between the selected element and a neighbouring element by passing a current through the connection.” Thus, claim 4 is currently amended to remove all means plus function language. In view the foregoing amendments, the Applicant respectfully requests reconsideration and withdrawal of the present rejection.

(3) Claim 4 is further rejected for a lack of antecedent basis for the limitations of “the connection or connections.” Claim 4 is currently amended to recite: “a first portion to break through an electrically conductive connection between the selected element and a neighbouring element by passing a current through the connection; and a second portion configured to pick up the selected element from the array.” In view the foregoing amendments, the Applicant respectfully requests reconsideration and withdrawal of the present rejection.

V. CLAIM REJECTIONS UNDER 35 U.S.C. §103(A):

On page 4, the Office Action rejects claims 1 and 2 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,418,181 to Ohkubo et al. in view of U.S. Patent No. 6,380,059 to Ho et al. In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration and withdrawal of the present rejection.

The Office Action appears to align “elements 9” and the “bonding wax 71” of Ohkubo with the “discrete elements” and the “supporting structure” of claim 1. The Office Action further appears to align the “support layer 5” of Ohkubo with the “at least one support tab” of claim 1. Ohkubo discloses that “the support layer 5 formed in the grid recess 4 is separated from elements 9

with the bonding wax 71 connecting them together. ... The bonding wax 71 is removed with a solvent, and the elements 9, i.e. Gunn diodes are simply picked out of the holder substrate 7 to complete the process.” *Col. 6, Lines 21-27*. In other words, each element 9 of Ohkubo is attached to the support layer 5 via bonding wax 71. The bonding wax 71 is then removed with a solvent to allow the removal of the elements 9 from the support layer 5. This is in contrast to claim 1 which recites “wherein each element *is attached to* at least one of a supporting structure and at least one other element *by* at least one electrically conductive support tab.” The bonding wax 71, rather than the support layer 5 of Ohkubo, appears to be most similar in function to the support tab of claim 1. However, the bonding wax 71 is not at all structurally similar to the “support tab,” as claimed. Nor is bonding wax 71 electrically conductive, or removed or broken by passing a current therethrough, as recited in claim 1.

The Office Action further admits that “Ohkubo does not teach selectively removing or breaking the tab or tabs supporting a particular element or particular elements, and wherein the tab or tabs are removed or broken by passing a current therethrough.” *See page 5*. Instead, the Office Action aligns the “constricted element 41” of Ho with the “support tab” of claim 1.

However, because it is now clear that Ohkubo does not disclose support tabs, as claimed, the Office Action’s reasoning for combining Ohkubo with Ho is unsupported. On page 5, the Office Action states that “[i]t would have been obvious to one of ordinary skill in the art to combine the overall method of forming an array of discrete elements with *support tab-fuse type structures* as taught by Ohkubo, with the method of selectively removing the tabs via current as taught by Ho.” As described above, Ohkubo does not disclose “support tab-fuse type structures,” but rather a structure bonded with wax. Furthermore, while Ohkubo relates to the manufacture of semi-

conductors, Ho relates to short circuiting and open-circuiting conductors on a circuit board. The Office Action provides no basis for combining these two references which date from different time periods and relate to different technologies.

Furthermore, the Applicants respectfully submit that Ho is nonanalogous prior art to the present invention. It is well established law that in order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992); M.P.E.P. § 2141.01(a). As recited in claim 1, the present invention relates to a method of manufacturing a number of discrete elements. Ho, on the other hand, discloses a method "to break integrally-connected electrically-conductive traces on a circuited substrate used in TFBGA (Thin & Fine Ball Grid Array) semiconductor packaging technology, so as to make the electrically-conductive traces open-circuited for the implementation of open-circuited testing on the electrically-conductive traces on the substrate." *See Abstract*. Ho clearly has nothing to do with "manufacturing a number of discrete elements," as claimed, and therefore is not "in the field of applicant's endeavor."

In addition, Ho is not "reasonably pertinent to the particular problem with which the inventor was concerned." The solution for implementing open-circuited testing, as disclosed in Ho, is clearly unrelated to the problem of removing "components or elements one at a time in a controlled and/or controllable manner," as addressed in claim 1. *See Specification, Page 1, Lines 30-31*. For example, Ho forms "a resistively-enlarged point at the terminal of each electrically-conductive trace on the substrate, which can be melted away while leaving each electrically-conductive trace intact simply by applying an electrical current of an adequate magnitude to pass

through each electrically conductive trace. As each electrically-conductive trace is open-circuited, an open circuited testing procedure can be then performed on the electrically-conductive on the substrate.” *Abstract*. This is in contrast to the problem solved by the claimed invention, in which an “element to be separated from an array is a conducting preform 2 designed to provide an electrical connection to a semiconductor die.” *See Specification, Page 4, Lines 5-7*. In other words, Ho discloses a method of melting a resistively-enlarged point at a terminal on a circuit board to make an open circuit and does not relate to the manufacture of devices. Thus, it is unlikely that one of ordinary skill in the art would have considered Ho to improve a method for manufacturing a number of discrete elements, as disclosed in the present invention. Therefore, Ho is nonanalogous prior art to the present invention.

Even if Ho were analogous art, one could not arrive at the present invention through the combination of Ohkubo and Ho. Ohkubo teaches mechanically holding separate elements together via a bonding wax (i.e. a non-conductor) and Ho teaches creating open circuits for testing unrelated to the manufacture of devices. The combination would merely disclose to one skilled in the art how to blow a circuit track within a discrete element. It would not disclose “manufacturing an array of said discrete elements, wherein each element is attached to at least one of a supporting structure and at least one other element by at least one electrically conductive support tab; and selectively removing or breaking the at least one support tab supporting one of the discrete elements, wherein the at least one support tab is removed or broken by passing a current therethrough,” as recited in claim 1.

For at least the foregoing reasons, claim 1 is patentable over Ohkubo in view of Ho. The subject matter of claim 2 is substantially similar to that of claim 1. Thus, claim 2 is also patentable

for at least the same foregoing reasons. In view of the foregoing amendments and remarks, the Applicants respectfully request reconsideration and withdrawal of the present rejection.

VI. CLAIM REJECTIONS UNDER 35 U.S.C. §102(B):

On page 7, the Office Action reject claims 4-7 and 9 under 35 U.S.C. §102(b) as being anticipated by Japanese Publication No. 1995/297263 to Miyoshi Ryuichi et al. (hereinafter “Ryuichi”). In view of the foregoing amendments and the following remarks, the Applicant respectfully requests reconsideration and withdrawal of the present rejection.

Items 9d and 9f of the Office Action assert that “a recitation of an element that is ‘capable of’ performing a function is not a positive limitation but only requires the ability to so perform and does not constitute a limitation in any patentable sense.” *See page 8.* Claim 4 is currently amended to remove the “capable of” language and now recites: “a first portion to break through an electrically conductive connection between the selected element and a neighbouring element by passing a current through the connection; and a second portion to pick up the selected element from the array.” The first and second portion of claim 4 are now positively recited.

The Office Action aligns the “top portion of collet 12” and the “bottom portion of collet 12” of Ryuichi with the “first portion” and “second portion” of claim 4. However, collet 12 does not “break through an electrically conductive connection between the selected element and a neighboring element by passing a current through the connection,” as recited in claim 4. Rather, Ryuichi teaches away from breaking through a connection, when it states that: “the pressure-from-below needle 12 does not break through the pressure sensitive adhesive sheet 1” in order to prevent “breakage ... in the semiconductor chip 2.” *See Translation, Page 7, Paragraph 0035.*

For at least these reasons, claim 4 is not anticipated by Ryuichi. Claims 5-7 and 9 depend from independent claim 1 and are similarly patentable. In view of the foregoing amendments and remarks, the Applicants respectfully request reconsideration and withdrawal of the present rejection.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. The Applicant, therefore, respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. The Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided. Prompt and favorable consideration of this Amendment is respectfully requested.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 22-0261, under Order No. 41557-236805.

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